



NSAI
Standards

Irish Standard
I.S. EN 60644:2009&A1:2019

Specification for high-voltage fuse-links for motor circuit application

I.S. EN 60644:2009&A1:2019

Incorporating amendments/corrigenda/National Annexes issued since publication:

EN 60644:2009/A1:2019

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National Foreword

I.S. EN 60644:2009&A1:2019 is the adopted Irish version of the European Document EN 60644:2009, Specification for high-voltage fuse-links for motor circuit application

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EUROPEAN STANDARD

EN 60644:2009/A1

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 2019

ICS 29.120.50

English Version

**Specification for high-voltage fuse-links for motor circuit applications
(IEC 60644:2009/A1:2019)**

Spécification relative aux éléments de remplacement à haute tension destinés à des circuits comprenant des moteurs
(IEC 60644:2009/A1:2019)

Anforderungen für Hochspannungs-Sicherungseinsätze für Motorstromkreise
(IEC 60644:2009/A1:2019)

This amendment A1 modifies the European Standard EN 60644:2009; it was approved by CENELEC on 28 October 2019. CEN and CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment the status of a national standard without any alteration.

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

EN 60644:2009/A1:2019 (E)

European foreword

The text of document 32A/340/CDV, future IEC 60644/A1, prepared by SC 32A "High-voltage fuses" of IEC/TC 32 "Fuses" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60644:2009/A1:2019.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2020-07-28
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2022-10-28

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The text of the International Standard IEC 60644:2009/A1:2019 was approved by CENELEC as a European Standard without any modification.

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60282-1	2009	High-voltage fuses - Part 1: Current-limiting fuses	EN 60282-1	2009
+ A1	2014		+ A1	2014
IEC/TR 62655	2013	Tutorial and application guide for high-voltage fuses	-	-

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 60644

December 2009

ICS 29.120.50

Supersedes EN 60644:1993

English version

Specification for high-voltage fuse-links for motor circuit application
(IEC 60644:2009)

Spécification relative aux éléments
de remplacement à haute tension destinés
à des circuits comprenant des moteurs
(CEI 60644:2009)

Anforderungen für Hochspannungs-
Sicherungseinsätze für Motorstromkreise
(IEC 60644:2009)

This European Standard was approved by CENELEC on 2009-10-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: Avenue Marnix 17, B - 1000 Brussels

Foreword

The text of document 32A/267/CDV, future edition 2 of IEC 60644, prepared by SC 32A, High-voltage fuses, of IEC TC 32, Fuses, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60644 on 2009-10-01.

This European Standard supersedes EN 60644:1993.

The main changes with regard to EN 60644:1993 concern the following:

- update of the normative references;
- renewal of the figures.

The following dates were fixed:

- latest date by which the EN has to be implemented
at national level by publication of an identical
national standard or by endorsement (dop) 2010-07-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2012-10-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60644:2009 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated:

IEC 60470 NOTE Harmonized as EN 60470:2000 (not modified).

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60282-1	2005	High-voltage fuses - Part 1: Current-limiting fuses	EN 60282-1	2006

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IEC 60644

Edition 2.0 2009-08

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Specification for high-voltage fuse-links for motor circuit applications

Spécification relative aux éléments de remplacement à haute tension destinés à des circuits comprenant des moteurs



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IEC 60644

Edition 2.0 2009-08

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Specification for high-voltage fuse-links for motor circuit applications

Spécification relative aux éléments de remplacement à haute tension destinés à des circuits comprenant des moteurs

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

SPECIFICATION FOR HIGH-VOLTAGE FUSE-LINKS FOR MOTOR CIRCUIT APPLICATIONS

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 60644 has been prepared by subcommittee 32A: High voltage fuses, of IEC technical committee 32: Fuses

This second edition cancels and replaces the first edition, published in 1979, and constitutes a technical revision.

The main changes with regard to the previous edition concern the following:

- update of the normative references;
- renewal of the figures.

The text of this standard is based on the following documents:

CDV	Report on voting
32A/267/CDV	32A/270/RVC

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

SPECIFICATION FOR HIGH-VOLTAGE FUSE-LINKS FOR MOTOR CIRCUIT APPLICATIONS

1 Scope

This standard applies primarily to fuse-links used with motors started direct-on-line on alternating current systems of 50 Hz and 60 Hz.

NOTE When motors are used with assisted starting this specification can also be applied but particular attention should be paid to the selection of the rated current of the fuse-link (see 8.1) and the manufacturer of the fuse-link should preferably be consulted.

Fuse-links according to this specification are intended to withstand normal service conditions and motor starting pulses. They should comply with the requirements of IEC 60282-1.

The purpose of this standard is to standardize time-current characteristics, to formulate pulse withstand requirements regarding testing and to give guidance regarding the selection of fuse-links intended to be used with motors.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60282-1:2005, *High-voltage fuses – Part 1: Current-limiting fuses*

3 Fuse-link time-current characteristics

Compared to fuses typically used for distribution system protection, fuses for motor circuit protection should have:

- relatively high melting current (slow operation) in the 10 s region of the pre-arcing time-current characteristic to give maximum withstand against motor starting current;
- relatively low melting current (fast operation) in the region below 0,1 s to give maximum short-circuit protection to associated switching devices, cables and motors and their terminal boxes.

Therefore pre-arcing time-current characteristics of fuse-links for motor circuit applications shall be within the following limits:

$$I_{f10} / I_n \geq 3 \quad \text{for} \quad I_n \leq 100$$

$$I_{f10} / I_n \geq 4 \quad \text{for} \quad I_n > 100$$

$$I_{f0,1} / I_n \leq 20 (I_n / 100)^{0,25} \quad \text{for all current ratings}$$

where

I_n is the numerical value of the current rating, expressed in amperes, of the fuse-link;

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